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Serial No. 10/003,952
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This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims

1-4. (Canceled)

5. (Currently amended) A method for performing an impact analysis of program statements in a source code file that is one of a plurality of source code files, wherein each program statement has at least one of an input parameter and output parameter, comprising:

receiving selection of at least one program statement in one source code file; and

for each selected program statement, determining program statements throughout the source code files having as one input parameter one program artifact that is affected by the selected program statement, wherein recursive calls are made for determining the program statements throughout the source code files having as one input parameter one program artifact that is affected by the selected source program statement.

6. (Original)   The method of claim 5, wherein the source code files including the program artifacts affected by the selected program statement comprise components of an application program.

7. (Original)   The method of claim 5, wherein determining the program statements having as one input parameter one program artifact affected by the selected program statement further comprises:

determining program statements in the source code files having as one input parameter the program artifact that is one output parameter to the selected program statement.

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8. (Original) The method of claim 7, wherein determining the program statements having as one input parameter one program artifact affected by the selected program statement further comprises:

for each previously determined program statement having as one input parameter one program artifact affected by the selected program statement, performing the steps of:

(i) determining the output parameter program artifact of the statement; and

(ii) determining program statements in the source code files having as one input parameter the program artifact that is the output parameter of the previously determined statement.

9. (Currently amended) A method for performing an impact analysis of program statements in a source code file that is one of a plurality of source code files, wherein each program statement has at least one of an input parameter and output parameter, comprising:

receiving selection of at least one program statement in one source code file; and

for each selected program statement, determining program statements throughout the source code files having as one input parameter one program artifact that is affected by the selected program statement, wherein determining the program statements having as one input parameter one program artifact affected by the selected program statement further comprises determining program statements in the source code files having as one input parameter the program artifact that is one output parameter to the selected program statement, wherein determining the program statements having as one input parameter one program artifact affected by the selected program statement further comprises:

for each previously determined program statement having as one input parameter one program artifact affected by the selected program statement, performing the steps of:

(i) determining the output parameter program artifact of the statement; and

(ii) determining program statements in the source code files having as one input

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parameter the program artifact that is the output parameter of the previously determined statement. ~~The method of claim 8,~~ wherein determining the program statements having as one input parameter one program artifact affected by the selected program statement further comprises:

for each previously determined program statement having as one input parameter one program artifact that is the output parameter of one previously determined program statement having as one input parameter one program statement affected directly or indirectly by the selected source program statement, performing the steps of:

[[(i)]] (a) determining the output parameter program artifact of the determined program statement;

[[(ii)]] (b) determining program statements in the source code files having as one input parameter the program artifact that is the output parameter of the determined program statement; and

(c) performing recursively the determination of program statements having as one input parameter one program artifact that is the output parameter of one previously determined program statement having as one input parameter one program statement affected directly or indirectly by the selected source statement.

10. (Original) The method of claim 5, further comprising:

outputting information on determined program statements and program artifacts affected by each selected program statement.

11. (Original) The method of claim 5, wherein the program artifact comprises a variable, Input/Output buffer or file.

12. (Original) The method of claim 5, wherein one program statement has one input

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parameter that is affected by the selected program statement if the output parameter program artifact of the selected program statement is the input parameter program artifact to the program statement.

13. (Original) The method of claim 12, wherein one statement further has one input parameter that is affected by the selected program statement if the output parameter program artifact of the selected program statement is the input parameter program artifact to the program statement or if the output parameter program artifact of one statement other than the selected program statement has as one input parameter one program artifact affected by the selected program statement.

14. (Original) The method of claim 5, wherein if the selected program statement comprises a call to a program routine comprised of a plurality of statements in one of the source code files, then one statement has one input parameter that is affected by the selected program statement if:

the output parameter program artifact of the selected source code statement is the input parameter program artifact to the statement; or

the input parameter of the selected source code statement is the input parameter program artifact to the statement.

15. (Original) The method of claim 5, further comprising:

accessing the source code files from a control management system.

16-24. (Canceled)

25. (Currently amended) A system for performing an impact analysis of program

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statements in a source code file that is one of a plurality of source code files, wherein each program statement has at least one of an input parameter and output parameter, comprising:

means for receiving selection of at least one program statement in one source code file; and

means for determining, for each selected program statement, program statements throughout the source code files having as one input parameter one program artifact that is affected by the selected program statement, wherein recursive calls are made for determining the program statements throughout the source code files having as one input parameter one program artifact that is affected by the selected source program statement.

26. (Original) The system of claim 25, wherein the source code files including the program artifacts affected by the selected program statement comprise components of an application program.

27. (Original) The system of claim 25, wherein the means for determining the program statements having as one input parameter one program artifact affected by the selected program statement further performs:

determining program statements in the source code files having as one input parameter the program artifact that is one output parameter to the selected program statement.

28. (Original) The system of claim 27, wherein the means for determining the program statements having as one input parameter one program artifact affected by the selected program statement further performs for each previously determined program statement having as one input parameter one program artifact affected by the selected program statement:

determining the output parameter program artifact of the statement; and

determining program statements in the source code files having as one input parameter

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the program artifact that is the output parameter of the previously determined statement.

29. (Currently amended) A system for performing an impact analysis of program statements in a source code file that is one of a plurality of source code files, wherein each program statement has at least one of an input parameter and output parameter, comprising:

means for receiving selection of at least one program statement in one source code file; and

means for determining, for each selected program statement, program statements throughout the source code files having as one input parameter one program artifact that is affected by the selected program statement, wherein the means for determining the program statements having as one input parameter one program artifact affected by the selected program statement further performs determining program statements in the source code files having as one input parameter the program artifact that is one output parameter to the selected program statement, wherein the means for determining the program statements having as one input parameter one program artifact affected by the selected program statement further performs for each previously determined program statement having as one input parameter one program artifact affected by the selected program statement:

(i) determining the output parameter program artifact of the statement; and

(ii) determining program statements in the source code files having as one input parameter the program artifact that is the output parameter of the previously determined statement. The system of claim 28, wherein the means for determining the program statements having as one input parameter one program artifact affected by the selected program statement further performs for each previously determined program statement having as one input parameter one program artifact that is the output parameter of one previously determined program statement having as one input parameter one program statement affected directly or indirectly by the selected source program statement:

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(a) determining the output parameter program artifact of the determined program statement;

(b) determining program statements in the source code files having as one input parameter the program artifact that is the output parameter of the determined program statement; and

(c) performing recursively the determination of program statements having as one input parameter one program artifact that is the output parameter of one previously determined program statement having as one input parameter one program statement affected directly or indirectly by the selected source statement.

30. (Original) The system of claim 25, further comprising:

means for outputting information on determined program statements and program artifacts affected by each selected program statement.

31. (Original) The system of claim 25, wherein the program artifact comprises a variable, Input/Output buffer or file.

32. (Original) The system of claim 25, wherein one program statement has one input parameter that is affected by the selected program statement if the output parameter program artifact of the selected program statement is the input parameter program artifact to the program statement.

33. (Original) The system of claim 32, wherein one statement further has one input parameter that is affected by the selected program statement if the output parameter program artifact of the selected program statement is the input parameter program artifact to the program statement or if the output parameter program artifact of one statement other than the selected

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program statement has as one input parameter one program artifact affected by the selected
program statement.

34. (Original) The system of claim 25, wherein if the selected program statement
comprises a call to a program routine comprised of a plurality of statements in one of the source
code files, then one statement has one input parameter that is affected by the selected program
statement if:

the output parameter program artifact of the selected source code statement is the input
parameter program artifact to the statement; or

the input parameter of the selected source code statement is the input parameter program
artifact to the statement.

35. (Original) The system of claim 25, further comprising:

means for accessing the source code files from a control management system.

36-44. (Canceled)

45. (Currently amended) An article of manufacture including code for performing an
impact analysis of program statements in a source code file that is one of a plurality of source
code files, wherein each program statement has at least one of an input parameter and output
parameter, by:

receiving selection of at least one program statement in one source code file; and

for each selected program statement, determining program statements throughout the
source code files having as one input parameter one program artifact that is affected by the
selected program statement, wherein recursive calls are made for determining the program

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statements throughout the source code files having as one input parameter one program artifact that is affected by the selected source program statement.

46. (Original) The article of manufacture of claim 45, wherein the source code files including the program artifacts affected by the selected program statement comprise components of an application program.

47. (Original) The article of manufacture of claim 45, wherein determining the program statements having as one input parameter one program artifact affected by the selected program statement further comprises:

determining program statements in the source code files having as one input parameter the program artifact that is one output parameter to the selected program statement.

48. (Previously presented) The article of manufacture of claim 47, wherein determining the program statements having as one input parameter one program artifact affected by the selected program statement further comprises:

for each previously determined program statement having as one input parameter one program artifact affected by the selected program statement, performing the steps of:

(i) determining the output parameter program artifact of the statement; and

(ii) determining program statements in the source code files having as one input parameter the program artifact that is the output parameter of the previously determined statement.

49. (Currently amended) An article of manufacture including code for performing an impact analysis of program statements in a source code file that is one of a plurality of source code files, wherein each program statement has at least one of an input parameter and output

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parameter, by:

receiving selection of at least one program statement in one source code file; and

for each selected program statement, determining program statements throughout the source code files having as one input parameter one program artifact that is affected by the selected program statement, wherein determining the program statements having as one input parameter one program artifact affected by the selected program statement further comprises determining program statements in the source code files having as one input parameter the program artifact that is one output parameter to the selected program statement, wherein determining the program statements having as one input parameter one program artifact affected by the selected program statement further comprises:

for each previously determined program statement having as one input parameter one program artifact affected by the selected program statement, performing the steps of:

(i) determining the output parameter program artifact of the statement; and

(ii) determining program statements in the source code files having as one input parameter the program artifact that is the output parameter of the previously determined statement. ~~The article of manufacture of claim 48,~~ wherein determining the program statements having as one input parameter one program artifact affected by the selected program statement further comprises:

for each previously determined program statement having as one input parameter one program artifact that is the output parameter of one previously determined program statement having as one input parameter one program statement affected directly or indirectly by the selected source program statement, performing the steps of:

[[(i)]] (a) determining the output parameter program artifact of the determined program statement;

[[(ii)]] (b) determining all program statements in the source code files having as one input parameter the program artifact that is the output parameter of the determined program

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statement; and

(c) performing recursively the determination of program statements having as one input parameter one program artifact that is the output parameter of one previously determined program statement having as one input parameter one program statement affected directly or indirectly by the selected source statement.

50. (Original) The article of manufacture of claim 45, further comprising:

outputting information on determined program statements and program artifacts affected by each selected program statement.

51. (Original) The article of manufacture of claim 45, wherein the program artifact comprises a variable, Input/Output buffer or file.

52. (Original) The article of manufacture of claim 45, wherein one program statement has one input parameter that is affected by the selected program statement if the output parameter program artifact of the selected program statement is the input parameter program artifact to the program statement.

53. (Original) The article of manufacture of claim 52, wherein one statement further has one input parameter that is affected by the selected program statement if the output parameter program artifact of the selected program statement is the input parameter program artifact to the program statement or if the output parameter program artifact of one statement other than the selected program statement has as one input parameter one program artifact affected by the selected program statement.

54. (Original) The article of manufacture of claim 45, wherein if the selected program

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statement comprises a call to a program routine comprised of a plurality of statements in one of the source code files, then one statement has one input parameter that is affected by the selected program statement if:

the output parameter program artifact of the selected source code statement is the input parameter program artifact to the statement; or

the input parameter of the selected source code statement is the input parameter program artifact to the statement.

55. (Original) The article of manufacture of claim 45, further comprising:
accessing the source code files from a control management system.

56-60. (Canceled)

61. (Previously presented) The method of claim 5, further comprising:
performing recursively the determination of program statements throughout the source code files.

62. (Previously presented) The method of claim 61, wherein the program statements have as one input parameter one program artifact that is the output parameter of one previously determined program statement.

63. (Previously presented)   The method of claim 62, wherein the one previously determined program statement has as one input parameter one program statement affected directly or indirectly by the selected source program statement.

64. (Previously presented)   The method of claim 63, further comprising:

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generating information on each program artifact referenced as an output parameter in at least one program statement.

65. (Previously presented)   The method of claim 64, further comprising:

determining program statements in the source code file having as one input parameter one program artifact that is affected by the selected source program statement.

66. (Previously presented)   The method of claim 63, further comprising:

determining program statements in the source code file having as one input parameter one program artifact that is affected by the selected source program statement.

67. (Previously presented)   The method of claim 62, wherein the one previously determined program statement has as one input parameter one program statement affected directly by the selected source program statement.

68. (Currently amended) The method of claim 5, wherein the recursive calls are made during impact analysis to an impact analysis routine.

69. (Canceled).

70. (Previously presented)   The system of claim 25, further comprising:

means for performing recursively the determination of program statements throughout the source code files.

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71. (Previously presented)   The system of claim 70, wherein the program statements have as one input parameter one program artifact that is the output parameter of one previously determined program statement.

72. (Previously presented)   The system of claim 71, wherein the one previously determined program statement has as one input parameter one program statement affected directly or indirectly by the selected source program statement.

73. (Previously presented)   The system of claim 72, further comprising:
means for generating information on each program artifact referenced as an output parameter in at least one program statement

74. (Previously presented)   The system of claim 73, further comprising:
means for determining program statements in the source code file having as one input parameter one program artifact that is affected by the selected source program statement.

75. (Previously presented)   The system of claim 72, further comprising:
means for determining program statements in the source code file having as one input parameter one program artifact that is affected by the selected source program statement.

76. (Previously presented)   The system of claim 71, wherein the one previously determined program statement has as one input parameter one program statement affected directly by the selected source program statement.

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77. (Currently amended) The system of claim 25, wherein the recursive calls are made during impact analysis to an impact analysis routine

78. (Canceled)

79. (Previously presented)   The article of manufacture of claim 45, wherein the code further performs recursive determination of program statements throughout the source code files.

80. (Previously presented)   The article of manufacture of claim 79, wherein the program statements have as one input parameter one program artifact that is the output parameter of one previously determined program statement.

81. (Previously presented)   The article of manufacture of of claim 80, wherein the one previously determined program statement has as one input parameter one program statement affected directly or indirectly by the selected source program statement.

82. (Previously presented)   The article of manufacture of claim 81, wherein the code further performs:
    generating information on each program artifact referenced as an output parameter in at least one program statement.

83. (Currently amended)   The method of claim 82, wherein the code further performs:
    determining program statements in the source code file having as one input parameter one program artifact that is affected by the selected source program statement.

84. (Previously presented)   The article of manufacture of claim 81, wherein the code

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further performs:

determining program statements in the source code file having as one input parameter one program artifact that is affected by the selected source program statement.

85. (Previously presented)   The article of manufacture of claim 80, wherein the one previously determined program statement has as one input parameter one program statement affected directly by the selected source program statement.

86. (Currently amended) The article of manufacture of claim 45, wherein the recursive calls are made during impact analysis to an impact analysis routine.

87. (Canceled)

88. (New) The method of claim 5, wherein for each program statement referencing a modified variable as an input variable, an impact analysis routine makes a recursive call to the impact analysis routine.

89. (New) The system of claim 45, wherein for each program statement referencing a modified variable as an input variable, an impact analysis routine makes a recursive call to the impact analysis routine.

90. (New) The article of manufacture of claim 45, wherein for each program statement referencing a modified variable as an input variable, an impact analysis routine makes a recursive call to the impact analysis routine.